

In the Claims

A listing of all pending claims is presented below, in which amended claims are preceded by the label (Amended) and claims not amended are labeled (Original).

Misnumbered claims 3-9 have been numbered 4-10. Please amend claims 1, 8, 9, and 16 as indicated below.

1. (Amended) A method for increasing the hybridization rate of nucleic acids in a nucleic acid assay, said method comprising:

a) attaching probe nucleic acid molecules of known sequence to a solid support;

b) labeling nucleic acid target molecules with paramagnetic labels;

~~c) contacting the labeled target molecules with the solid support;~~

~~d) activating a magnetic field whereby the labeled molecules are attracted to the solid support;~~

c) attracting said labeled nucleic acid target molecules to the solid support by activating a magnetic field effective to induce rapid migration of said labeled nucleic acid target molecules;

d) hybridizing the labeled nucleic acid target molecules with their complementary pairs at a hybridization rate greater than the hybridization rate in the absence of said attracting by said magnetic field;

e) washing the support and inverting the polarity of the magnetic field to remove any unbound or nonspecifically bound molecules; and

f) detecting the hybridized target nucleic acid molecules.

2. (Original) A method of claim 1 in which the solid support is selected from the group consisting of silicon, glass, and metals.

3. (Original) A method of claim 2 in which the solid support is or is coated with a metal selected from the group consisting of silver, copper, gold, platinum (II), mercury, mercury (II), thallium, cadmium (II), platinum (IV) and palladium (II).

4. (Original) A method of claim 1 in which the paramagnetic labels comprise superparamagnetic particles, having a diameter of from about 1 to about 10 nanometers.

5. (Original) A method of claim 1 in which the paramagnetic labels comprise paramagnetic porphyrins.

6. (Original) A method of claim 1 in which the paramagnetic labels are attached to the nucleic acid molecules using cleavable conjugating molecules.

7. (Original) A method of claim 1 in which the nucleic acid molecules are oligonucleotides, genomic DNA, cDNA, RNA or fragments thereof.

8. (Amended) A method of claim 1 in which at least one ~~member of a complementary pair of~~ said probe nucleic acid molecule and said nucleic acid target molecule is labeled with a fluorescent detection molecule.

9. (Amended) A method for increasing the hybridization rate of nucleic acids in a nucleic acid assay, said method comprising:

- a) attaching nucleic acid target molecules to a solid support;
- b) labeling nucleic acid probe molecules of known sequence with paramagnetic labels;
- ~~e) — contacting the support with the labeled nucleic acid molecules of known sequence;~~
- ~~d) — activating a magnetic field whereby the labeled molecules are attracted to the solid support;~~
- c) attracting said labeled nucleic acid probe molecules to the solid support by activating a magnetic field effective to induce rapid migration of said labeled nucleic acid probe molecules;
- d) hybridizing the labeled nucleic acid probe molecules with their complementary pairs at a hybridization rate greater than the hybridization rate in the absence of said attracting by said magnetic field;
- e) washing the support and inverting the polarity of the magnetic field to remove any unbound or nonspecifically bound molecules; and
- f) detecting the hybridized ~~target~~ probe nucleic acid molecules.

10. (Original) A method of claim 9 in which the solid support is selected from the group consisting of silicon, glass, and metals.

11. (Original) A method of claim 10 in which the solid support is or is coated with a metal selected from the group consisting of silver, copper, gold, platinum (II), mercury, mercury (II), thallium, cadmium (II), platinum (IV) and palladium (II).

12. (Original) A method of claim 9 in which the paramagnetic labels comprise superparamagnetic particles, having a diameter of from about 1 to about 10 nanometers.

13. (Original) A method of claim 9 in which the paramagnetic labels comprise paramagnetic porphyrins.

14. (Original) A method of claim 9 in which the paramagnetic labels are attached to the nucleic acid molecules using cleavable conjugating molecules.

15. (Original) A method of claim 9 in which the nucleic acid molecules are oligonucleotides, genomic DNA, cDNA, RNA or fragments thereof.

16. (Amended) A method of claim 9 in which at least one ~~member of a complementary pair of~~ said probe nucleic acid molecule and said nucleic acid target molecule is labeled with a fluorescent detection molecule.